Letters to the Journal

MYOCARDIAL ABSCESS AND ACUTE ENDOCARDITIS DUE TO *STREPTOCOCCUS PYOGENES*

To the Editor:

In the September 23 issue (*Canad. M. A. J.*, 85: 752, 1961) Mathews, Root and Wolochow, from the Montreal General Hospital, published an article on a solitary abscess of the heart with myocardial infarction.

In 1944 when I was Assistant Professor of Bacteriology at the University of Alexandria, Egypt, I came across a case of fatal abscess of the myocardium due to hemolytic *Streptococcus pyogenes*. Whether the case was published (in Egypt) I do not know, as that was 17 years ago, but I have my blood culture and bacteriological notes as well as the original notes I made from the patient's chart.

The patient, a labourer about 25 years old, was admitted to hospital with chest pain and a fever of five days' duration. He also suffered from joint pains, headache and a cough. On examination he was cyanosed and dyspneic, with a rapid respiration rate (32 per minute) and a rapid regular pulse (110 per minute). His temperature was 102° F. and the blood pressure was normal. He had clubbed fingers, and both spleen and liver were enlarged. There was a mitral presystolic murmur and a soft aortic diastolic murmur.

The leukocyte count was 39,000 per c.mm., with 97% polymorphonuclear leukocytes. The urine contained albumin and blood but was sterile on culture. There was a past history of painful swollen joints (? acute rheumatic fever) three years before.

He was put on Dagenan tablets (sulfapyridine) 1 g. every four hours, an alkaline mixture, and intravenous 25% glucose. Penicillin was not available (March 1944). After five days in hospital a blood culture was requested. This I collected and reported as positive for *Streptococcus pyogenes*, with a pour-plate count of 52 colonies per ml. of the patient's blood.

The aerobic blood-broth culture showed no signs of growth after 24 hours' incubation, whereas the one incubated in air containing 5% CO_2 and the anaerobic one both had minute (0.5 mm.) rounded loose "colonies" on the surface of the sedimented blood cells. When shaken and filmed, the CO_2 and anaerobic blood-broths showed long-chained Gram-positive streptococci. The aerobic tube showed no growth. However, after incubation for a further 24 hours all three tubes had a marked zone of hemolysis in the broth above the sedimented blood cells, and a film from the aerobic tube showed the streptococci in abundance. It will be noted that the number of streptococci in each blood sample of 5 ml.—judging by the 52 colonies developing from 1 ml. of blood in the pour plates—was about 260 streptococci, quite an ample inoculum to initiate growth.

Ten days after admission the patient developed jaundice. Two days later the sulfapyridine had to be stopped for three days and the patient given more glucose, and also calcium. On the 14th day, dyspnea became more marked, so the patient was given inhalations of oxygen and the sulfapyridine started again. A throat swab taken on that day was cultured but grew no hemolytic streptococci. On the 20th day his condition deteriorated. He was put on morphine and died the following day.

Postmortem examination revealed acute bacterial endocarditis with vegetations affecting both the mitral and aortic valves. Infarcts were seen in the spleen and kidneys. In addition, frank pus oozed from an abscess inside the substance of the myocardium. There was also a hemopericardium and fibrinous pericarditis. I cultured the myocardial pus and obtained *Streptococcus pyogenes* in pure culture. The strains were not typed.

In summary, a 25-year-old man was admitted to hospital with symptoms suggesting subacute bacterial endocarditis and died twenty days later. Autopsy revealed, besides vegetations and infarcts in the spleen and kidneys, an abscess in the substance of the myocardium. *Streptococcus pyogenes* was isolated from the circulating blood 16 days before death and from the myocardial pus at autopsy.

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TEN USES OF EPIDEMIOLOGY

To the Editor:

Dr. Saiger's article "Ten Uses of Epidemiology" (*Canad. M. A. J.*, 85: 992, 1961) is as timely as it is skilfully written. The next decade will undoubtedly see much increase in epidemiologic studies of etiology, disease risks and assessment of standard medical procedures.

Despite this prediction, it is not likely that the epidemiologist will be a popular member of any research team. His constant emphasis upon careful research design and his background in statistics tend to discourage any close relationship between himself and clinical research as it is at present carried out.

The semantics of epidemiology must be particularly frustrating to a clinician. Dr. Saiger reiterates the problem of elucidating the cause-effect relationship without first manipulating the situation by experiment. Unfortunately, the epidemiologist must himself understand that reduction of "cause" to its elemental components is not necessary before clinical and public health applications can be made. We tend to forget that the removal of the handle of the Broadstreet pump and the subsequent change in London's water supply as a result of Snow's activities were effective in the eradication of outbreaks of cholera long before the identification of the vibrio. Unfortunately, in medicine we seem to develop different levels of acceptable proof depending upon whether the suspect vehicle or agent of a disease is of socio-economic importance or not. The epidemiologist is wise to be sceptical about proof of cause-effect; the clinician and public health specialist are ultimately the ones who must assess the validity of these relationships in the light of their personal experience and the total experience of medicine. It may